The LISTER Gasoline Engine

The EDITH *and* LORNE PIERCE
COLLECTION *of* CANADIANA

Queen's University at Kingston

CATALOGUE OF

LISTER GASOLINE ENGINE LISTER GRINDER, SAWS, PUMPS, ETC.

R. A. Lister & Co., Limited

58-60 Stewart Street
TORONTO

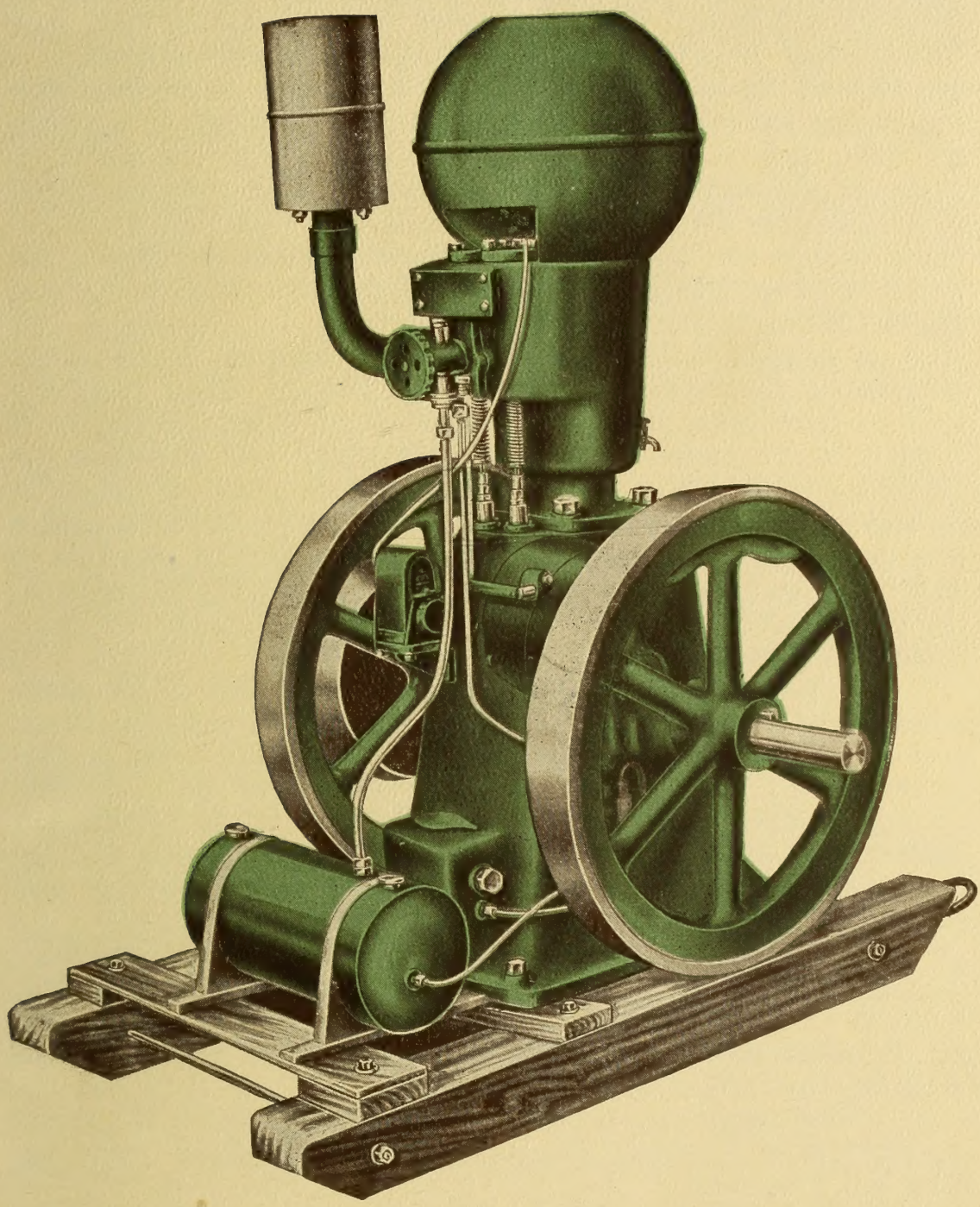
Galt Building
WINNIPEG

Water Street
ST. JOHN, N.B.

WORKS: DURSLEY, ENGLAND

Branches and Agencies Throughout the World

LISTER GASOLINE ENGINE



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LISTER GASOLINE ENGINE

IN the **"Lister" Vertical Engine,** we are offering to the Canadian farmer an engine which for quality of materials and workmanship, economy and efficiency is unequalled by any other on the market.

The **"Lister" Engine** has been **designed, manufactured and standardised at our Works in Dursley, England,** where we have been established for nearly one hundred years, and maintains that reputation for solid construction and long life which is associated with goods of British manufacture throughout the world.

In designing the **"Lister"** engine we have endeavoured to provide the agriculturist and small power user with an efficient, simple, safe and durable engine capable of being operated by the average hired man with no dangerous outside lamp, and **no batteries to run down.**

A valuable feature of the **"Lister"** gasoline engine is the absence of all outside oil cups and oil holes. When there are four or five lubricators to be filled every time the engine is started, and several oil holes out of which the dirt must be cleaned before they can be oiled, one or two possibly may be missed and cause trouble. Our unique system of lubrication provides a remedy for this trouble, as we only fit one box in which to place the oil, our lubricating pump distributing it to the parts necessary, after which it drains back in the reservoir and is used over and over again.

Another important point is the accessibility of the component parts. A large inspection door gives access to the crank and connecting rod; the cam shaft and crank shaft can be dismounted in a few minutes, and the valves can be taken out quickly without having to break any water joints. Parts are hardened where necessary and ground true to less than one-thousandth part of an inch. Phosphor bronze bushes are employed throughout.

The convenience of agents and users has been carefully studied. All parts are stamped with a number to facilitate renewals. Timing wheels are stamped so that if removed they can be replaced for correct timing without any special knowledge on the part of the man employed.

Spare parts can be obtained at short notice from our warehouses at Toronto, Winnipeg and St. John, or from our local sales agent.

To sum up, the **"Lister"** engine is the greatest labor, time and money saver on the farm. It will develop its full rated horse power, has an exceedingly low fuel consumption, will do the work of several hired men, and will save its cost over and over again.

LISTER GASOLINE ENGINE

POWER ON THE FARM

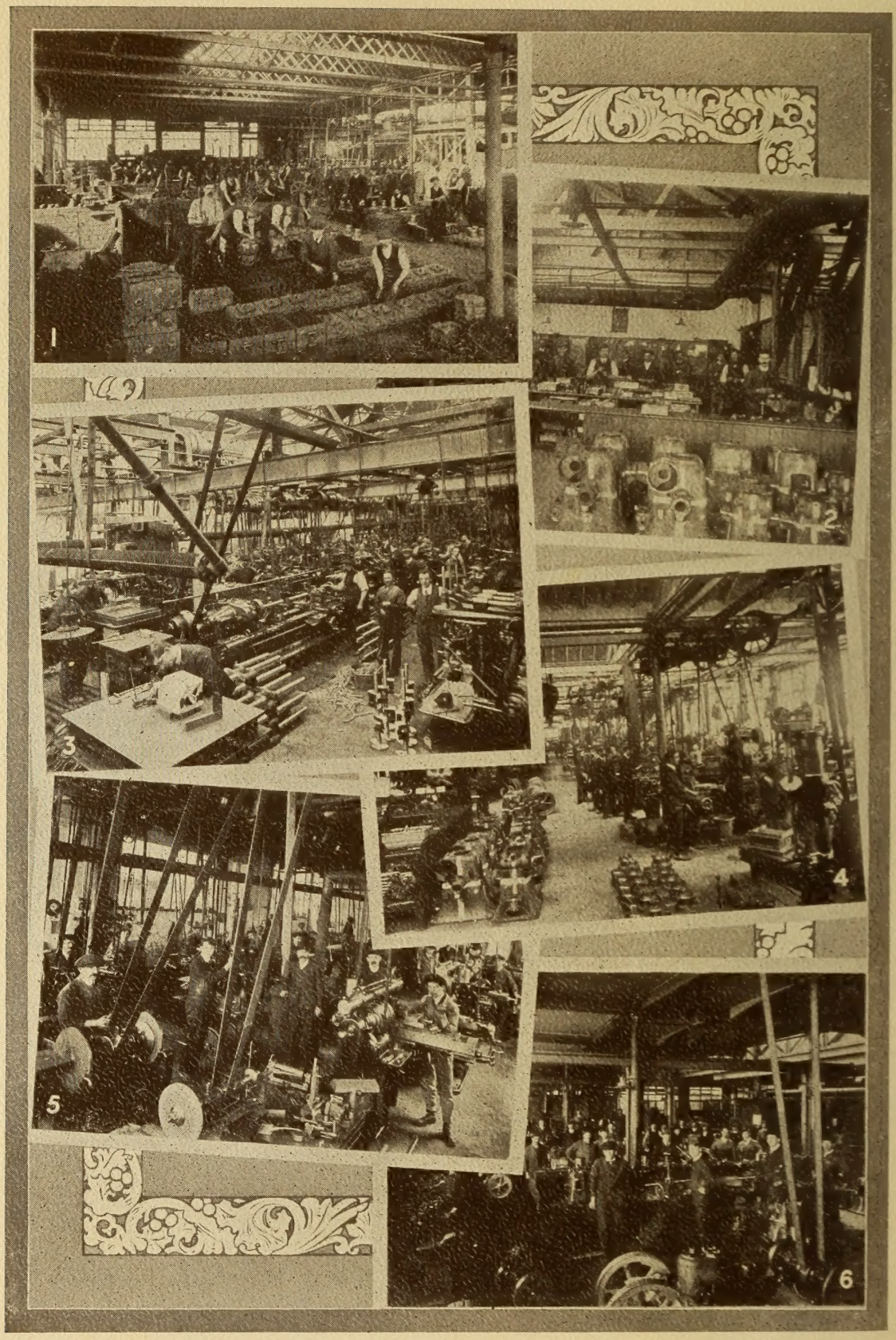
THE harder it is to procure labour, the more necessary and the more profitable does some form of power become, and there is no power more efficacious and more profitable to the farmer than the Gasoline Engine. The owner of a gas engine is constantly finding new uses for his engine. He may buy an engine with the idea of simply using it for driving a grinder, but as time goes on he finds that it can be used to equal advantage for running the separator, washing machine, churn, grindstone, or for cutting feed, sawing wood, pumping water, running the thresher and ensilage cutter, and filling the silo, and eventually for generating electricity to light up his house and outbuildings.

The actual cash saving effected by the use of gasoline power on the farm depends, of course, upon the uses to which the power is applied. We reproduce on page 16 of this catalogue a letter from a user of a Lister Gasoline Engine which shows clearly "the dollars and cents value of farm power." What has been the experience of this user may also be the experience to an equal or greater extent of any user of a reliable and efficient gasoline engine such as the Lister.

Another aspect of the question is the increased comforts and the extra leisure time accruing from the employment of farm power. The installation of a Lister Engine opens up a wide avenue of escape from the drudgery of not only farm but household occupations, and what is of particular importance in these times, **it will help to keep the boy on the farm.**

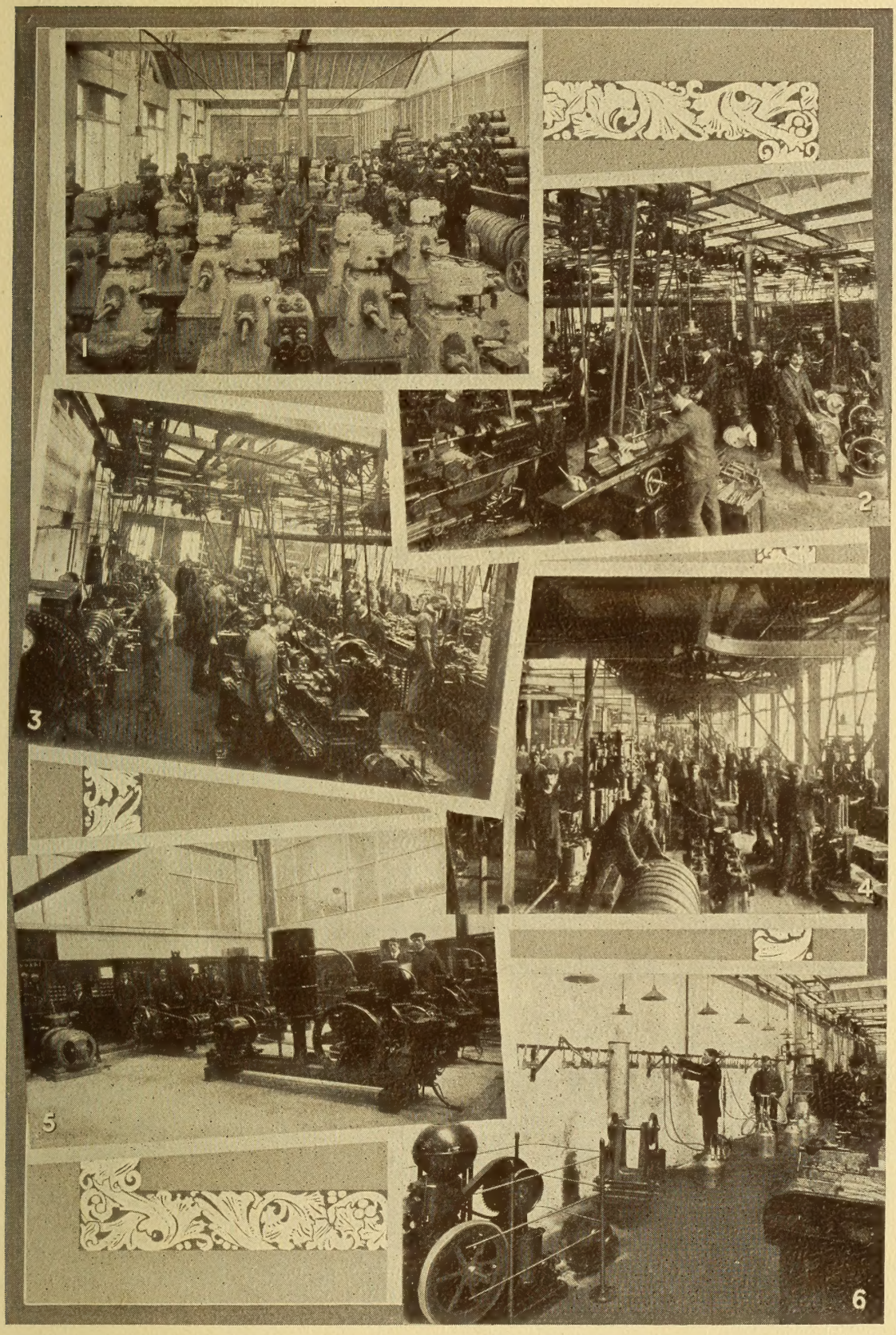
It is often asked, "Can the hired man run the Gasoline Engine?" Why, yes. Any person of average intelligence can start, run, and handle the Lister Engine. There is no battery to run down or get out of order, no lamp to adjust, no outside oil holes to fill, no danger, no extra insurance. Ten thousand **"Lister"** users will confirm this.

LISTER GASOLINE ENGINE



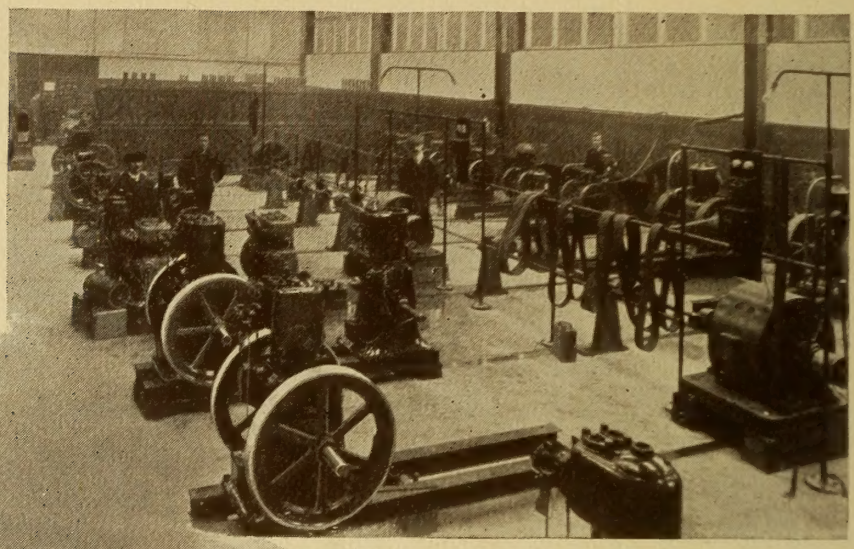
1—Foundry
2—Viewing Room
3—Engine Machine Shop No. 1
4—Engine Machine Shop No. 2
5—Tool Room
6—Engine Erecting Shop

LISTER GASOLINE ENGINE



1—Engine Paint Shop
2—Engine Machine Shop No. 3
3—Turning Shop
4—Engine Machine Shop No. 4
5—Lister-Bruston Test Shop
6—Testing Milking Machines

LISTER GASOLINE ENGINE



The illustration shows our testing room with the latest up-to-date appliances, including special electrical dynamometers by which an accurate test of the brake H. P. is taken of each engine together with the Gasoline consumption; with the usual Prony Brake it is not possible to make extended full power test owing to the heat generated by the friction of the blocks on the flywheel or pulley used; but with our electrical dynamometers we are able to run for any length of time on full load, consequently we can, and do, give a very severe test before the engine is passed as correct. An indicator card is obtained to ensure correct setting of valves and ignition, and a record of test is kept of each engine.

AWARDS

The "**Lister**" Engines are winning laurels in all parts of the world. Wherever they have been introduced they have quickly demonstrated their superiority and secured a large sale, the result of their extreme simplicity, economical running and reliability.

RECENT AWARDS INCLUDE:

GRAN PREMIO DE HONOR, Buenos Aires International Agricultural Exhibition.

GOLD MEDAL, Vienna International Field and Sporting Exhibition.

DIPLOMA, Ottawa Exhibition, 1912.

DIPLOMA, Ottawa Exhibition, 1913.

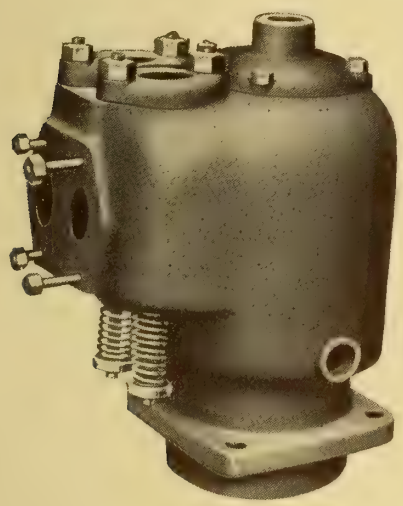
GOLD MEDAL, Ghent International Exhibition, Belgium, 1913.

DIPLOMA, Canadian Industral Exhibition Association, Winnipeg, 1913 and 1914.

LISTER GASOLINE ENGINE

DETAILS OF CONSTRUCTION.

The intelligent purchaser will pay careful attention to the matter of construction. A poorly constructed engine is dear at any price. We invite every prospective buyer of a Lister Engine to read the following brief description of the Lister construction. It should convince him of the superiority of our engine over any other.

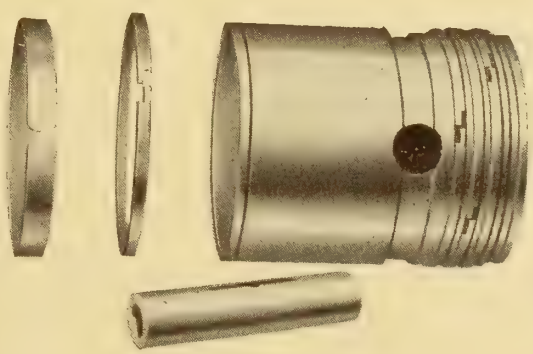


CYLINDER.—This is the most important part of the engine. It is here that the explosions of gas and air take place which produce the motive power. Our cylinders are carefully tested by hydraulic pressure before passing through the machine shop and any showing signs of porosity are rejected. To insure a sound casting and clean waterway, the top of the water jacket is cast open.

The advantage of the open water jacket is, that in districts where the water is hard which has to be used for cooling purposes, a deposit is bound to take place on the walls of the jacket and top of cylinder.

The cylinder cover can be removed easily and any deposit scraped off.

PISTON.—This is of ample bearing surface and accurately ground. The rings are also ground true, which ensures a good bearing surface even when the engine is new. The gudgeon pin is of special steel, case hardened and ground true to size. It is prevented from turning by a steel peg, and a steel clip fitting in a groove in the piston holds it in place instead of the usual set screws which are liable to work loose.

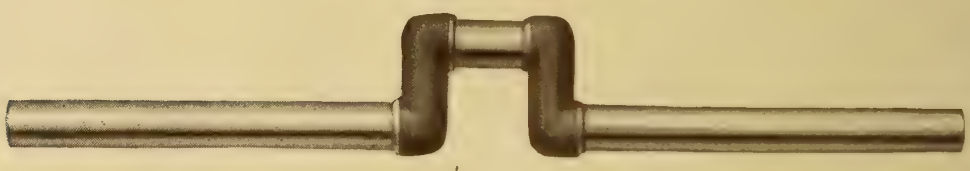


LISTER GASOLINE ENGINE

CRANK CASE

The Crank Case is of very neat design, all gearing being enclosed. A large inspection door is fitted by means of which the big end connecting rod bearing can be inspected and adjusted if necessary, without removing the piston. The main crank shaft bearings are split and caps fitted to the top of the bearings. We cast a box on the crank case from which oil is supplied by a pump to every part necessary. This box will hold sufficient oil for some weeks.

CRANK SHAFT



Our crank-shafts are made from high tensile steel bars bent by hydraulic pressure. This method of manufacture preserves the grain of the steel intact following the shape of the crank—after being rough turned they are carefully ground true. They are of ample strength and have large bearing surfaces.

VALVES

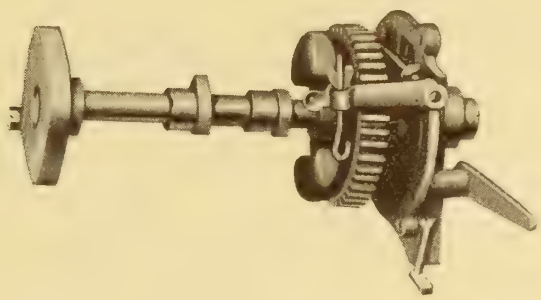
The valves are made from nickel steel drop forgings and are ground true. Their diameter is calculated so as to give an extra large area of opening to the cylinder and thus prevent back pressure or "wire drawing" of the gases. The guides in which the stems work are of ample length and the diameters of the stems are sufficient to guard against breakage. As the valve seatings are formed in a pocket they cannot fall into the cylinder and cause damage as frequently happens in engines with inverted valves placed over the cylinder.

LISTER GASOLINE ENGINE

CONNECTING ROD

This is a steel stamping and is of "H" section which gives maximum strength combined with lightness. It is fitted with special bronze bushes of ample area and the large end is split to permit of adjustment. Castle nuts of extra length permit of tightening one sixth of a turn at a time and are safer than two nuts and split pin as frequently fitted. The bottom end bearing can be adjusted or if necessary replaced without removing the piston.

GOVERNOR



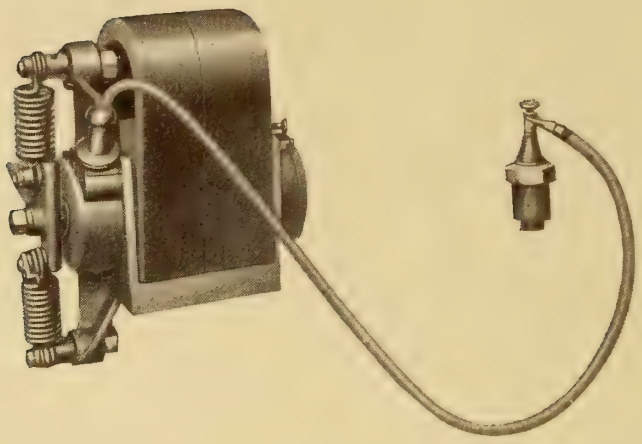
The system of governing adopted on the **"Lister"** Engines is known as the 'throttling' system. This means that the **QUANTITY** of mixture admitted to the cylinderis regulated by the Governor, and varies with the load. On a full load the cylinder gets a full charge, but on a lighter load the cylinder is not allowed to have a full charge, consequently the compression varies, and a weaker explosion takes place. This system of governing is steadier than the "hit and miss" system because the engine fires **EVERY TIME,** but the **FORCE OF THE EXPLOSION IS LESS.** The force of the explosion is proportional to the load on the Engine at any particular moment.

SPEED ADJUSTMENT

This is easily done whilst the engine is running, by adjusting a winged nut situated on the top of the governor lever.

LISTER GASOLINE ENGINE

IGNITION



All Lister Engines are fitted with High Tension Magneto Ignition. The old fashioned low tension devices were found to give frequent trouble owing to moving parts being subject ed to the action of heat, the breakage of springs and the frequent renewal of the points.

Most of the engines employing low tension igniters depend upon batteries as the source of the electric current—this system in practice results in frequent delays and much expense and annoyance when batteries run down—sometimes very quickly owing to accidental short circuits. We have adopted the trip system of magneto for our standard low speed engines.

The advantage of this system is that an equally intense spark is obtained on turning round by hand at starting as when the engine is at full speed. An ordinary sparking plug is used which is easily examined, cleaned, or replaced at small cost.

LUBRICATION.

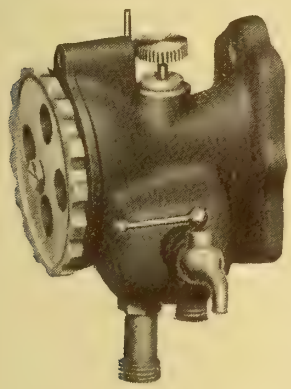
The system of lubrication as applied to the **"Lister"** Gasoline Engine is unique for this class of Engine, being entirely automatic. All outside lubricators are dispensed with. We supply oil direct to the main bearings by pump; the pump delivers more oil than is necessary for lubricating the bearings, and it overflows into the crank case; a ledge cast in the crank case prevents the oil from rising above a certain level; the surplus oil returning to the oil box.

This level has been ascertained to give efficient lubrication to the Connecting Rod, Piston and Gudgeon Pin, without fear of sooting the spark plug. It will be apparent that by this system it is not possible to **OVER-LUBRICATE**, neither is it possible to **UNDER-LUBRICATE** if there is **ANY OIL AT ALL** in the oil box at rear of Engine.

LISTER GASOLINE ENGINE

BEARINGS

All bearings are of phosphor bronze as used on the British Battleships and have ample bearing surface which with our system of lubrication means long life. The main bearings are split and fitted with caps, the Crank Shaft being accurately bedded in.



CARBURETTER

The usual "float" is dispensed with in the **"Lister"** Carburetter and a constant level of gasoline is maintained by means of a small feed pump. This is much safer than a "float feed" carburetter which is subject to flooding. Insurance Companies take this into consideration as the risk is less.

SAFETY

It will be seen from the above description that all possibility of danger has been eliminated in the **"Lister"** Engine. There is no outside lamp as in most oil engines and it is a common thing to see one of our engines working in a hay or straw elevator right up against the stacks.

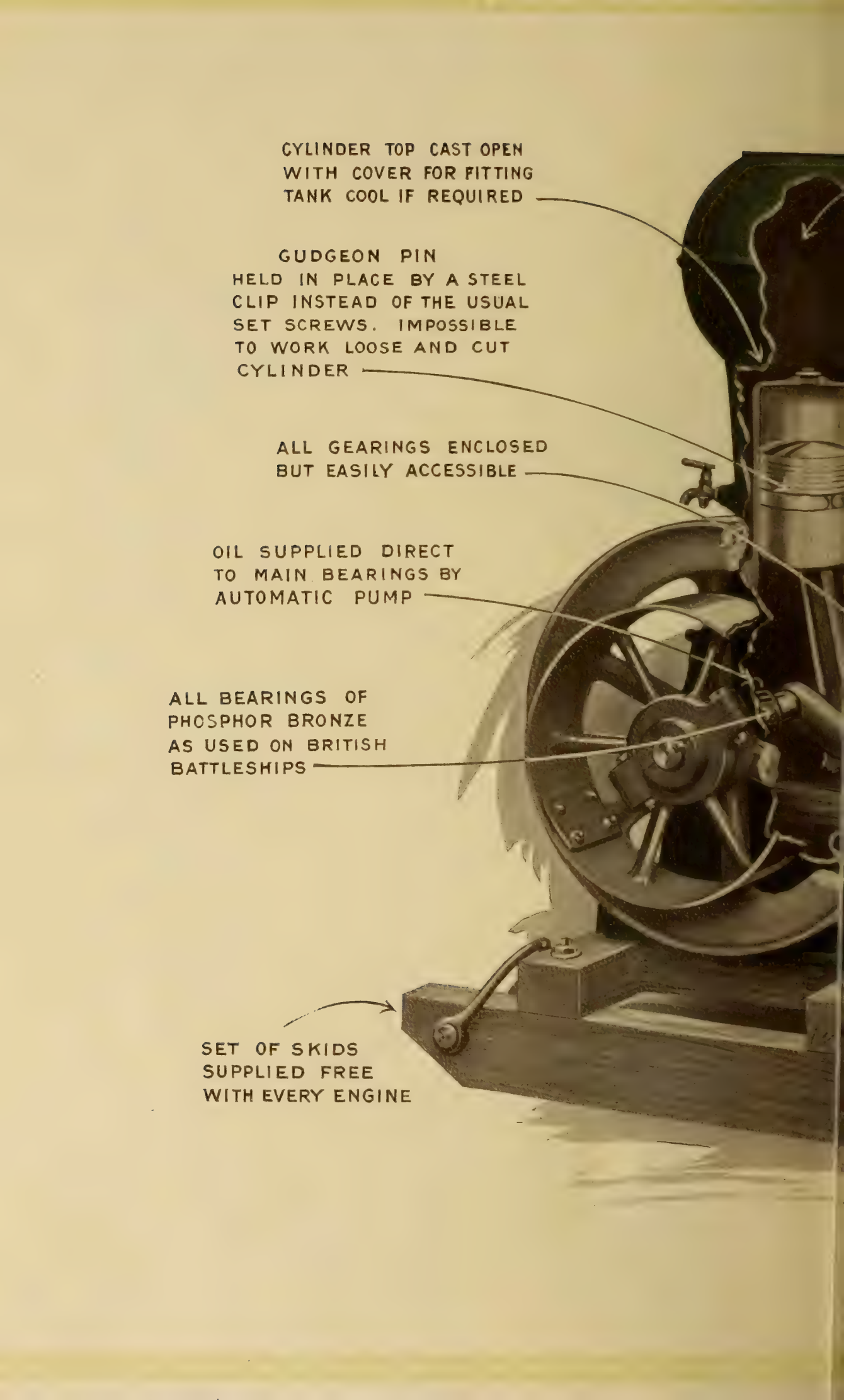
ADVANTAGES OF A VERTICAL ENGINE

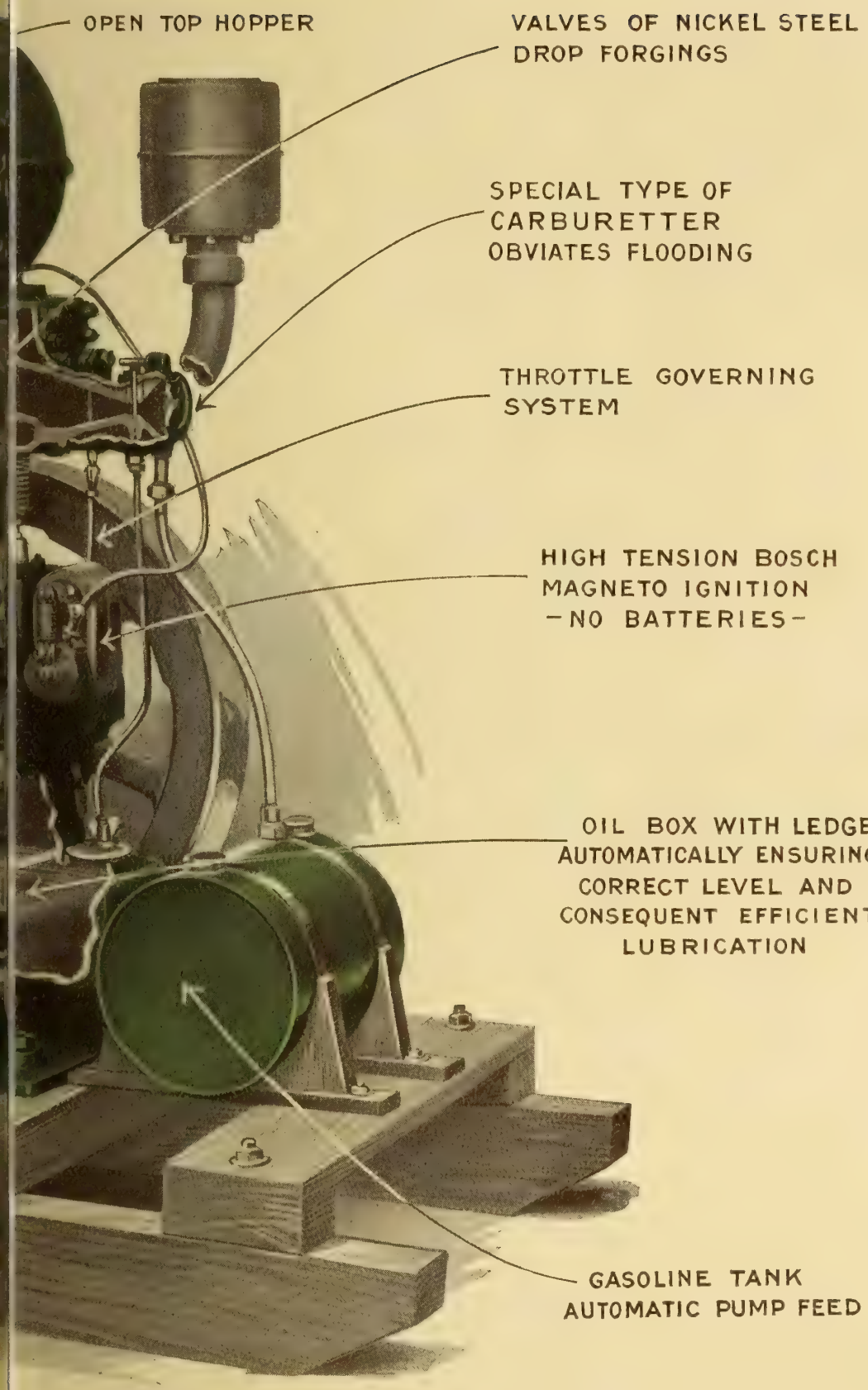
The vertical engine offers many and great advantages over the horizontal type. Owing to the better balancing of the moving parts and the vertical thrust of the explosion, a vertical engine will run much steadier and with less vibration than a horizontal engine of the same weight.

Not only does the vertical engine run steadier and lighter but it occupies only about half the floor space of the horizontal type.

In a vertical engine the inside of the cylinder, the bearings and gears are all protected from dust and dirt by a dust proof crank case but in a horizontal engine these are all exposed to the dust and dirt which is bound to be flying about when the engine is in use. A bearing or cylinder will last at least four times as long when lubricated with clean oil and if kept free from dust.

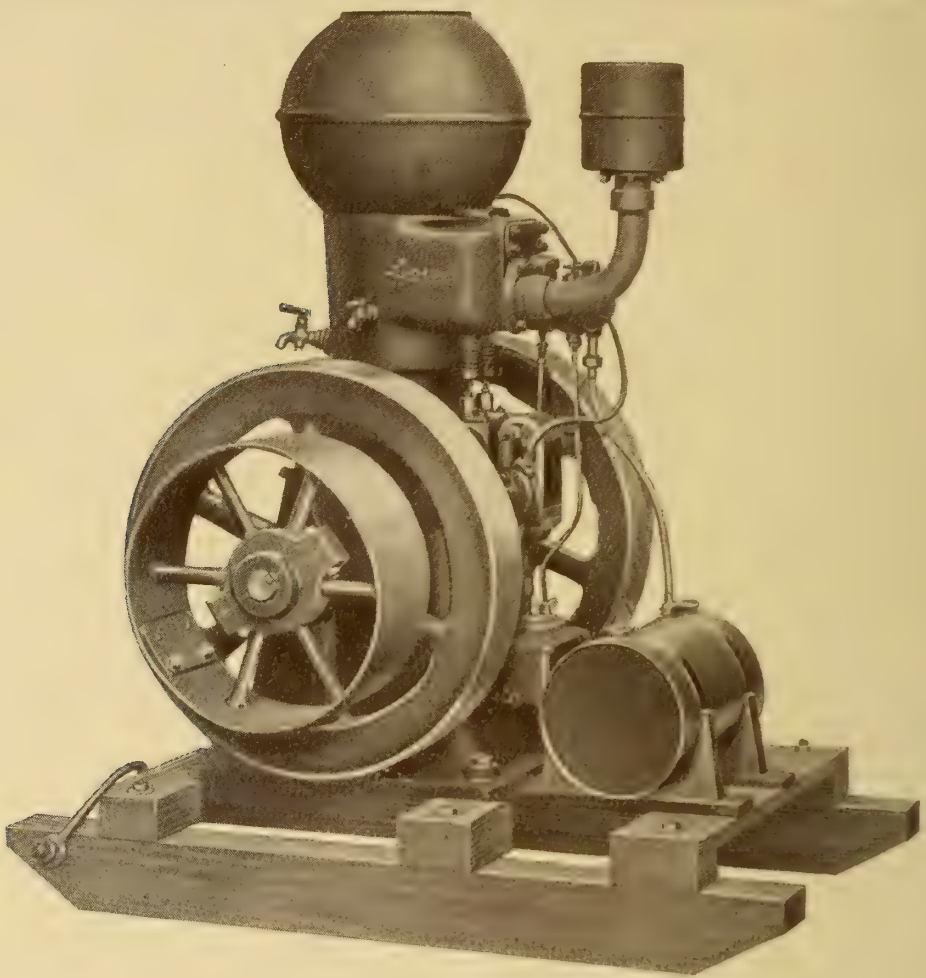
Again, owing to the cylinder being vertical, there is much less wear, as on a horizontal engine, the weight of the piston and piston rod is always bearing down on the bottom side of the cylinder and tending to wear it away.


CYLINDER TOP CAST OPEN
WITH COVER FOR FITTING
TANK COOL IF REQUIRED
GUDGEON PIN
HELD IN PLACE BY A STEEL
CLIP INSTEAD OF THE USUAL
SET SCREWS. IMPOSSIBLE
TO WORK LOOSE AND CUT
CYLINDER
ALL GEARINGS ENCLOSED
BUT EASILY ACCESSIBLE
OIL SUPPLIED DIRECT
TO MAIN BEARINGS BY
AUTOMATIC PUMP
ALL BEARINGS OF
PHOSPHOR BRONZE
AS USED ON BRITISH
BATTLESHIPS
SET OF SKIDS
SUPPLIED FREE
WITH EVERY ENGINE


OPEN TOP HOPPER
VALVES OF NICKEL STEEL DROP FORGINGS
SPECIAL TYPE OF CARBURETTER OBVIATES FLOODING
THROTTLE GOVERNING SYSTEM
HIGH TENSION BOSCH MAGNETO IGNITION -NO BATTERIES-
OIL BOX WITH LEDGE AUTOMATICALLY ENSURING CORRECT LEVEL AND CONSEQUENT EFFICIENT LUBRICATION
GASOLINE TANK AUTOMATIC PUMP FEED

LISTER GASOLINE ENGINE

Can be supplied either Hopper-Cooled (as illustrated) Thermo-Syphon Tank Cooled or Circulating Pump Spray Cooled.



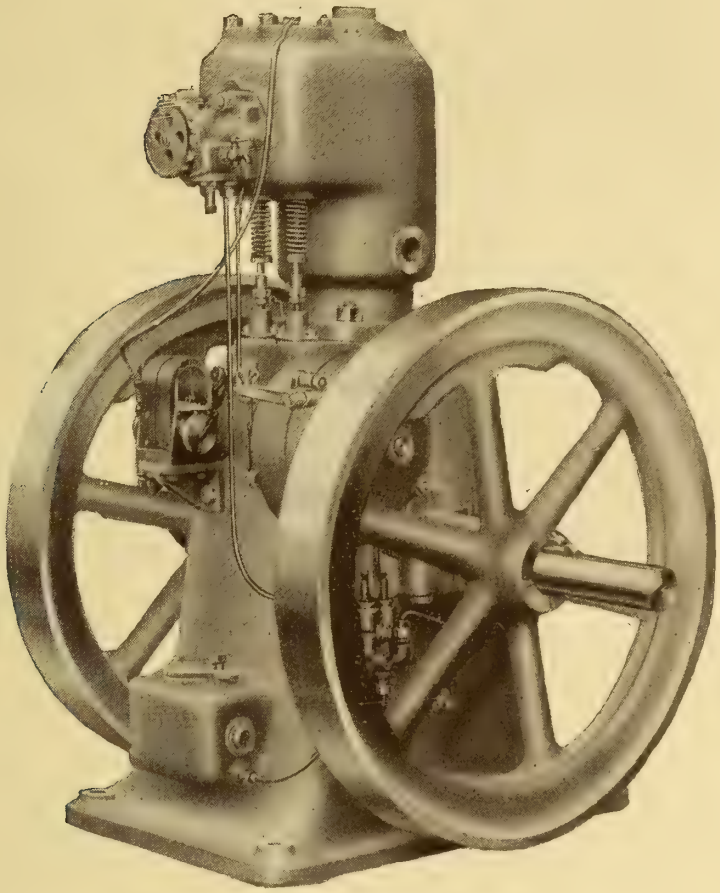
SPECIFICATIONS

SIZE H.P.	SPEED R.P.M.	Standard Pulleys DIA.	Standard Pulleys FACE	Diameter of Crank Shaft	FLOOR SPACE Approximate	HEIGHT
2	500	6 in.	4 in.	1 3/8 in.	2 ft. 10 in. x 3 ft. 9 in.	3 ft. 4 in.
3	450	8 in.	5 in.	1½ in.	3 ft. x 4 ft.	3 ft. 10 in.
5	435	16 in.	7 in.	1¾ in.	3 ft. 3 in. x 4 ft. 3 in.	4 ft. 2 in.
7	400	22 in.	8 in.	2½ in.	4 ft. 6 in. x 5 ft.	5 ft. 7 in.
9	350	24 in.	9 in.	2½ in.	4 ft. 9 in. x 5 ft. 3 in.	5 ft. 9 in.

N.B.—Every Engine is shipped complete and ready to run. There are no extras. Our prices include High Tension Magneto Ignition, Gasoline Tank and connections, Silencer, Standard Exhaust Piping and Bends, Standard Pulley, Wood Skids, Gall. Cylinder Oil Spare Springs, Complete Set Spanners, Spare Piston Rings, Pump Ball, Gasoline Strainer, Small Oiler, Spare Gaskets, etc.

LISTER GAS ENGINE

HOPPER, TANK OR SPRAY-COOLED



This engine is supplied with a Gas Meter and Gas Valve enabling it to be run either on town gas or on natural gas with excellent results.

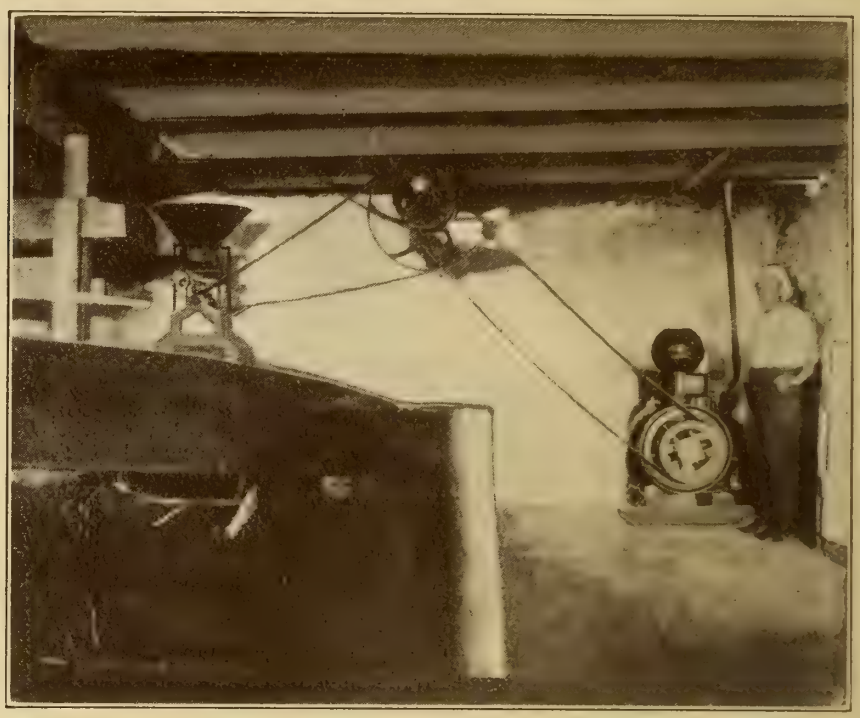
It is made in the same sizes as the Gasoline Engine illustrated on the opposite page and the prices are the same.

The fuel consumption is low rendering the Engine very economical in cost of operation.

Extra charge for Tank or Spray Cooled Engines.

LISTER GASOLINE ENGINE

Mr. Malyon's 5 H.P. Lister Engine Driving a Grinder



UXBRIDGE ONT., May 20th, 1914.

Messrs. R. A. LISTER & CO. Limited,
Toronto, Ont.

Dear Sirs:—

In estimating the relative cost of hand and gas power I use the following data. Hired help $1.50 per day, man and team $4.00 per day. Cost of outfit, engine and machine $300. Estimated life of outfit 15 years running at 300 hours per year or one hour per day on the average. In this way it can be seen the deterioration would amount to $20.00 per year or 6⅔ cents per hour. Cost of operating engine 12 cents per hour for oil.

With this data let us compare cost of cutting wood with power or by hand. In this locality it costs 80 cents per cord to get wood sawed by hand. Three men with saw and my 5 H.P. Lister engine can cut 40 cords, expenses as follows:

Men, $1.50 per day	$4.50
Oil	1.20
Deterioration	.65
	$6.35 or 16c. per cord

Hence on 40 cords there would be a saving of $25.60 on one day's work.

Let us now turn to filling a silo by a hired machine and with my own outfit. To hire an outfit it would cost $15.00 per day whereas to operate my outfit would be as follows:

Deterioration	$0.65
Oil	1.20
	$1.85

or a saving by having your own outfit of $13.15 per day.

Let us turn our attention now to chopping which is perhaps the operation in which power is most used on a farm.

Chopping at Mill, per ton	$1.20	Chopping at Home, Oil 3 hours	$0.36
Hauling one half day, men and team	2.00	Deterioration	.20
Cost, per Ton	$3.20	Cost, per ton	.56

or a saving of $2.64 per ton.

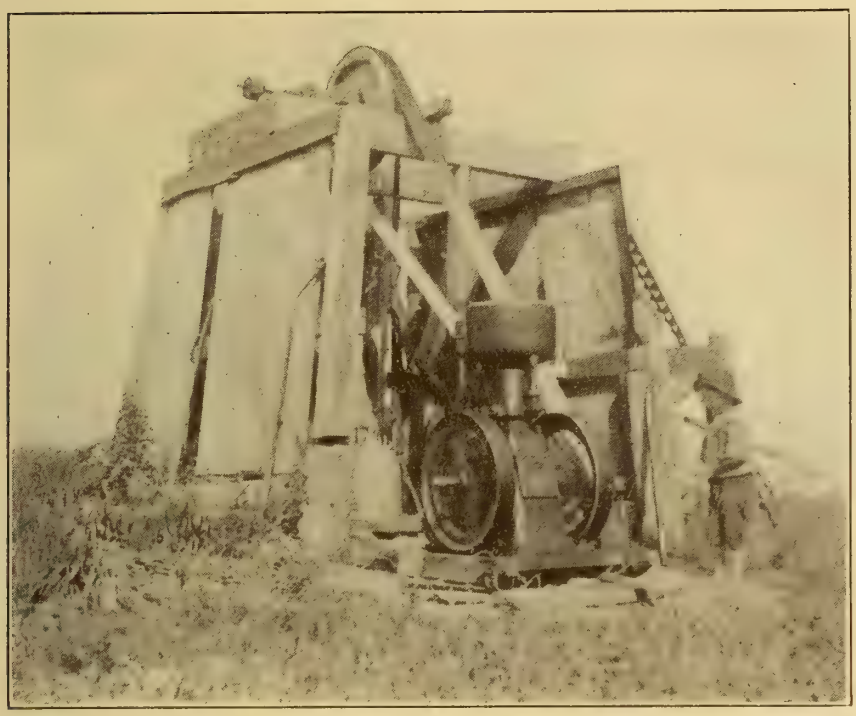
No time is counted for running the chopper as we chop while doing chores and only have to start and stop the machine.

I think I would be quite safe in saying that my outfit pays for itself at least every two years besides providing a lot of labor saving, conveniences and comfort.

I remain, JOHN F. MALYON

The above is only a portion of Mr Malyon's letter, a complete copy of which is given in our Testimonal List, sent on application.

LISTER GASOLINE ENGINE



Mr. Buchanan's 5 H.P. Lister Engine used for Pumping.

RAVENNA, August 6th, 1914.

MESSRS. R. A. LISTER & CO. LIMITED
Toronto, Ont.

Gentlemen:—

The 5 H.P. Gasoline Engine which we got from you about a year ago, is giving entire satisfaction. We use it for sawing wood, chopping, turning the grindstone and pumping water. In years gone by we had a windmill for pumping purposes, but we find the engine a long way ahead (as we do not need to wait for the wind to blow) and it runs as steady as a clock. In heavier jobs it is just as good and we do not see how we could do without it now. When I wrote to the Insurance Company (The Sydenham Mutual of Owen Sound), for a permit to run it in the barn, they replied that they were pleased to grant it as the Lister was one of the safest if not the safest engine on the market to-day.

Another thing about your Company I have found, that what you promised you fulfilled, and your expert has given me considerable assistance and the benefit of his experience which means a lot to those unacquainted with engines.

Yours very truly,

WALTER BUCHANAN

Space does not permit us to print more than the foregoing testimonials received from users of the Lister Engine, but we shall be pleased to send copies of other testimonials and names of nearest users to any person interested.

LISTER GRINDER

This Grinder has been designed specially for the Canadian Market by experts of many years practical experience in this country. We guarantee it to do more work (with the same power) than any other grinder of its size.

THE "LISTER" GRINDER

possesses the following special advantages. The plates are reversible, thus giving double the wearing surface of any plate with only one grinding side. The main shaft is of large diameter and has extra long bearings ensuring great durability and rigidity. At the end of the shaft there is a ball bearing to absorb friction.

The Grinder can be supplied without legs.

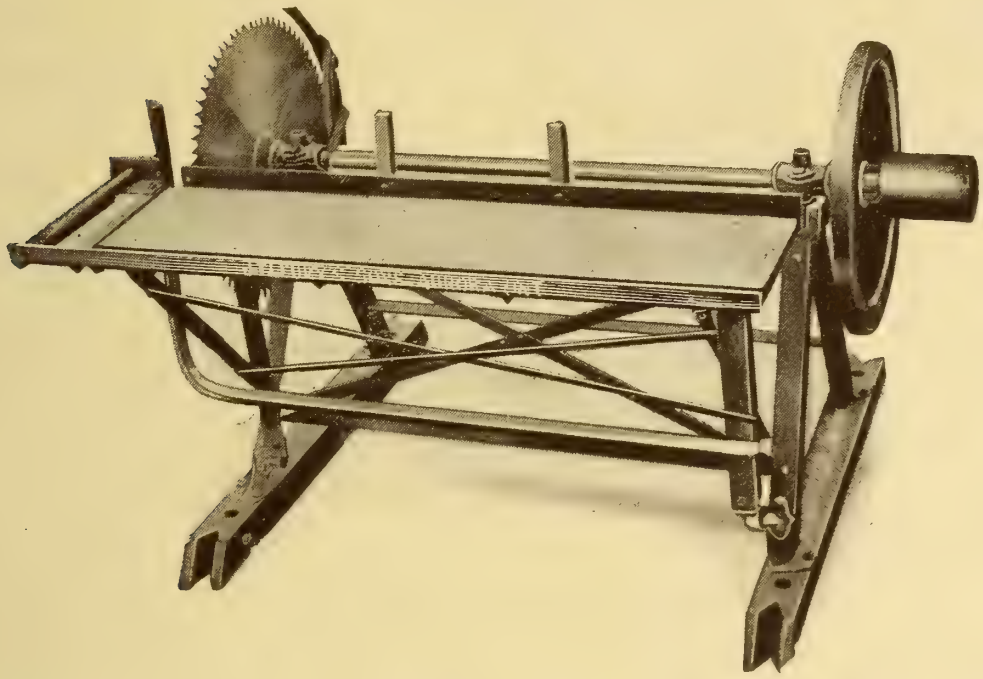
There is a special large worm to force feed into plates enabling up to 20 h. p. to be used.

Grinder fitted with attachment for driving bagger.

Spare set of plates supplied with every machine.

LISTER SAW FRAMES

CIRCULAR SAW MACHINE No. 3



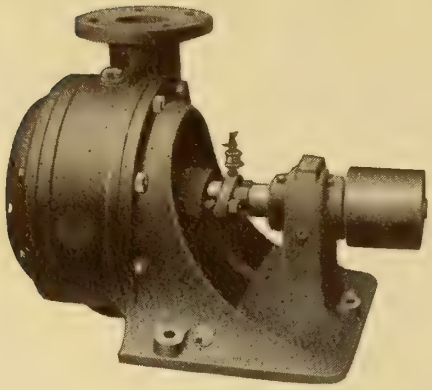
The **Frame** of this machine, as may be seen in the cut, is made up chiefly of **steel angle-bars,** well braced and **strongly riveted** together. The **Main Shaft** is of **fine machinery steel,** very **stiff** and of great **wearing quality,** running in boxes babbitted with **high grade metal.** A **special collar** on one end of shaft **takes up all end play** as wear on collar or box may take place. On the table is bolted a **hardwood board** and in end of table near the saw is placed a **roller—reducing** very much the work of **moving sticks along the table** to the saw. Length between saw and fly-wheel **4** ft., **4½** in. Size of pulley, which has **fully turned face, 5** inch diameter x **7** inch. **Saw** of any diameter from **22** inch to **30** inch can be supplied.

We can furnish a **simple** and **inexpensive device,** made of Steel Bars, to attach to the Saw Table for use in **sawing poles** —to keep them from falling against the Fly Wheel. This device is attached to the board on the swing table by the bolts that fasten the board to the table.

DRAG SAW

Where a drag saw is required we can supply what we believe to be the most improved on the market. Full illustrated list on application.

LISTER PUMPING OUTFITS

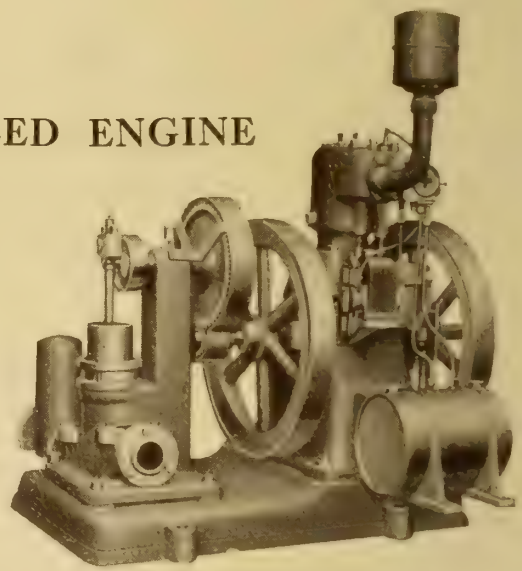


LISTER CENTRIFUGAL PUMPS

Sizes 3″ to 12″. Capacities 120 to 1450 gallons per minute.

For "heads" up to 75 feet.

"LISTER" DIRECT-COUPLED ENGINE AND PUMP



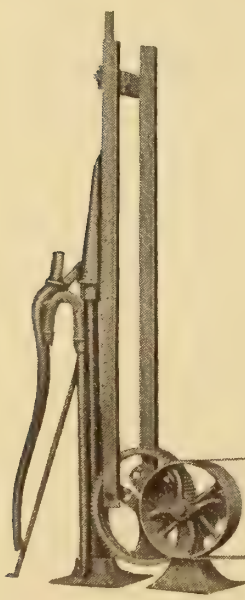
On cast iron base with Vacuum and Air Vessels—

Size A Capacity 1000 gallons per hour against a total head of 100 feet.

Size B Capacity 2000 gallons per hour.

ROTARY PUMPS

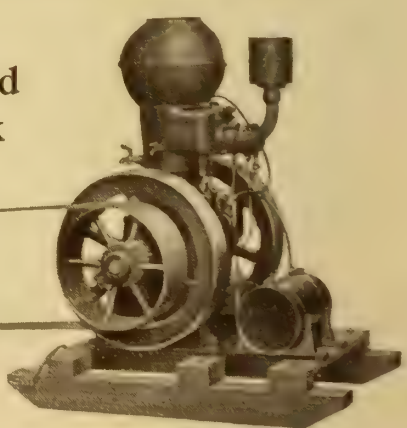
Type	Size	Capacity per Hour	H. P. Required
A.	¾″	300 gallons	All of these pumps can be driven by a 2 H. P. Lister Engine.
A.	1″	500 gallons	
B.	1″	700 gallons	
B.	1¼	1200 gallons	



DOUBLE ACTING PISTON PUMPS

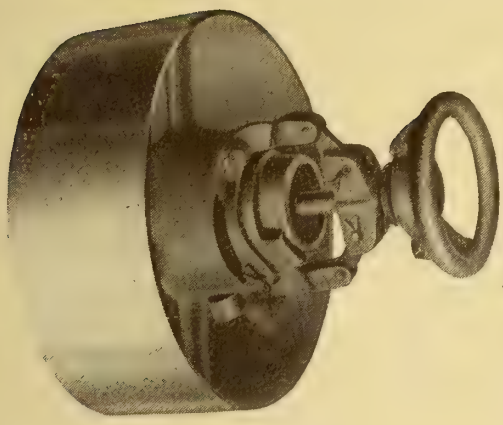
Head	Capacity per Hour	H.P. Required
100 ft.	1000 gallons	2 H. P.
200 ft.	2000 gallons	5 H. P.

Lister Engine Attached to Belted Pump Jack



LISTER CLUTCH PULLEYS

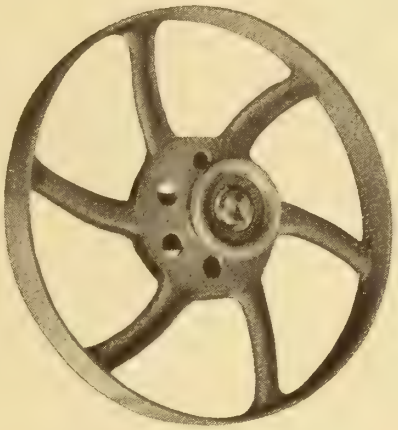
FRICTION CLUTCH PULLEY



For use with Lister Engines we can supply a Friction Clutch Pulley as illustrated below. This clutch will compare favorably with any other on the market. It is light but strong and easy of adjustment.

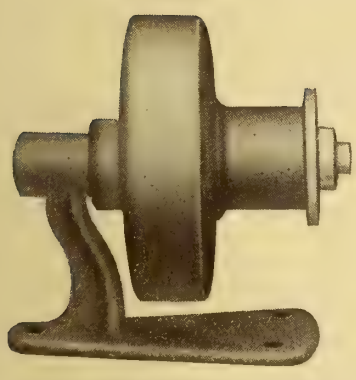
MELOTTE CLUTCH PULLEY

For driving the " Melotte " Cream Separator by power we manufacture a special clutch pulley in various sizes from 12 to 24 inches in diameter. Just the thing for belting to the Line Shaft pulley.



Melotte Clutch Pulley

THE PARKER PULLEY



Parker Governor Pulley

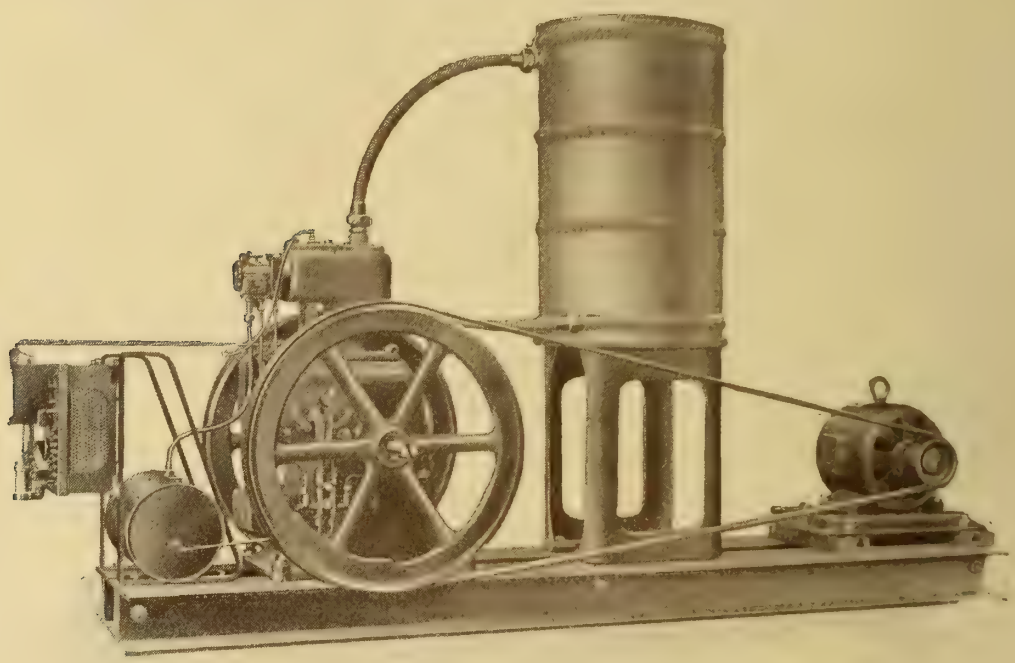
By the use of this pulley one may belt the Separator direct from the engine, dispensing with a line shaft. The clutch will not allow any sudden start of the engine to injure the separator, but will run the latter at a uniform and the correct speed.

LISTER LIGHTING PLANTS

LISTER BRUSTON AUTOMATIC ELECTRIC LIGHTING PLANTS

The most economical and convenient lighting and power system on the market for farmers using a large number of lights and some small motors.

The engine starts and stops itself.



LISTER SEMI-AUTOMATIC FARM LIGHTING PLANTS WITH OR WITHOUT ENGINE

These are designed for the farmer who does not use more than about ten lights at one time and wants to use the engine for other work. Mounted the same as the Lister Bruston plant and fitted with 2, 3, or 5 H. P. engine. The lighting is done by storage battery which has an indicator to show how much electricity is left in the battery. The engine must be started by hand to charge the battery or the charging can be done when running the engine for other work. Once the engine is started the battery automatically charges itself. There are no switches to open and close. This plant can be supplied to be run by the farmer's present engine.